Microsoft® Research
Faculty Summit
10
YEAR ANNIVERSARY

Microsoft Research

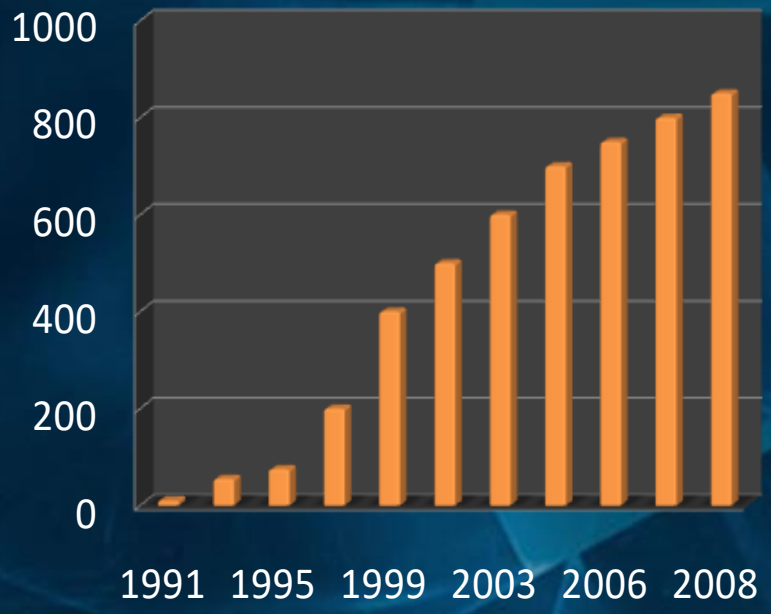
Research in the 21st Century

Rick Rashid
Senior Vice President
Microsoft Research

Microsoft Research

Microsoft Research

- Redmond, Washington (Sep, 1991)
- San Francisco, California (Jun, 1995)
- Cambridge, United Kingdom (July, 1997)
- Beijing, China (Nov, 1998)
- Silicon Valley, California (July, 2001)
- Bangalore, India (Jan, 2005)
- Cambridge, Massachusetts (July, 2008)



MSR India

MSR New England

Redmond

MSR Cambridge, England

MSR Asia

Silicon Valley, California

Microsoft Research Mission Statement

Microsoft Research

- Expand the state of the art in each of the areas in which we do research
- Rapidly transfer innovative technologies into Microsoft products
- Ensure that Microsoft products have a future

Value of Microsoft Research to Microsoft

Microsoft Research

- Source of IP and new product technologies
  - Microsoft Research generates roughly 20% of the Company's patents and generally Microsoft Research patents are more "fundamental"
- Problem solving
  - Ability to bring smart people to bear rapidly on hard problems confronting products, product groups or the company
- Early warning system
  - Ears to the ground in new areas across a broad range of technologies

Microsoft Research Patent Award

Basic Research → Agility

Microsoft Research

- Basic research group allows a company like Microsoft to respond more rapidly to change
- Research provides a reservoir of technology, expertise and people that can be quickly brought to bear:
  - New technologies
  - New competitors
  - New business models

You invest in basic research and long-term research precisely because you don't know what the future will hold. You don't know whether there will be a war, a disease outbreak, a famine, a new competitor, or an economic dislocation of some kind.

Vannevar Bush

Describing what would eventually become the National Science Foundation and the U.S. federal research infrastructure

Inventing the Future

Microsoft Research

- Interactive Visual Media
  - Graphics and Multimedia
  - Digital Photography and Video
- Platform Elements
  - Networking, Distributed systems, Operating systems
  - Cellphone and other Devices
  - Sensor networks
  - Security, Protection against Malware
- Reinventing Software Development
  - Languages, tools, compilers
- Data and Documents
  - Data Solutions for a Terabyte World
  - Search
  - Fighting SPAM
- UI and Collaboration
  - New UI – Speech, Ink, Gesture, Natural Language
  - Meetings and Collaboration
  - Modeling of People and Groups
- Science
  - AIDS Vaccine, Quantum Computing, Astronomy
  - Algorithms, Cryptography

Working with the Worldwide Academic Community

Microsoft Research

- Participate in Research Community
  - Extensive publication and conference participation
  - Professional service – DARPA, NSF, NRC
- Strong ties with universities
  - Joint research projects
- Extensive visitor and speaker program
  - Students, faculty, research scientists
  - Post-docs, sabbatical
  - Largest PhD internship program in the Industry

Worldwide Talent Support

Microsoft Research

80
students from around the world selected in 2008 for Ph.D. fellowships and scholarships

MORE THAN
100 top Ph.D. research students
from leading European academic institutions currently supported by Microsoft Research fellowships

25
Microsoft Research Faculty Fellowships awarded since 2005 in the U.S. and Canada

10
computer science students selected each year under the GRADUATE WOMEN'S SCHOLARSHIP PROGRAM

ABOUT
400
TOP STUDENTS
from dozens of universities participate each year in Microsoft Research Asia's Stars of Tomorrow internship program

MORE THAN **25,000** scientists, academic researchers, faculty and students have attended Microsoft Research–sponsored summits, conferences and workshops since 2005

Microsoft Research collaborates with more than
100
top universities in North America

NEARLY
1,000
students selected annually for internships at Microsoft Research labs in the U.S., China, India and the UK

ABOUT **100**
students and young faculty attend the annual MICROSOFT RESEARCH INDIA SUMMER SCHOOL PROGRAM

250
RESEARCHERS FROM
50
UNIVERSITIES IN
16
COUNTRIES
have joined with Microsoft Research in the Latin American and Caribbean Collaborative ICT Research Federation (LACCIR)

1,500
attendees at Microsoft Research India's TechVista 2008 research symposium in Chennai

465
students
from more than
35 countries
have interned at the Microsoft Research Cambridge (UK) lab during the past seven years

3,000
students, faculty and research scientists attended Microsoft Research Asia's Computing in the 21st Century conferences in Beijing and Singapore

MORE THAN **30** collaborative institutes and technology learning labs supported worldwide in research areas such as parallel computing, games for learning, artificial intelligence, computational and systems biology, and computational thinking

250 Ph.D. fellowships granted to students from 50 universities in the Asia-Pacific region since 1998

Microsoft Research

announcing

Extending a collaborative relationship with:

National Center for Women & Information Technology (NCWIT)

NCWIT and Microsoft

Microsoft Research

- NCWIT is a national coalition of over 170 prominent corporations, academic institutions, government agencies, and nonprofits
- Working to achieve and maintain U.S. global competitiveness in information technology through the encouragement and recruitment of women
- Efforts to increase women's participation in IT along the entire pipeline, from K-12 and higher education through industry, academic, and entrepreneurial careers
- www.ncwit.org

- Second partnership with NCWIT
- Microsoft and NCWIT are collaborating to raise awareness of today's changing workforce and the positive impact that women in IT have on the industry
- Microsoft provides $1M support over four years
- Continues relationship previously announced in 2006
- Underscores Microsoft's continued commitment to addressing critical shortages of women in the computer science talent pipeline

Microsoft Research

announcing

Microsoft Research New Faculty Fellowships 2009

2009 Microsoft Research New Faculty Fellows

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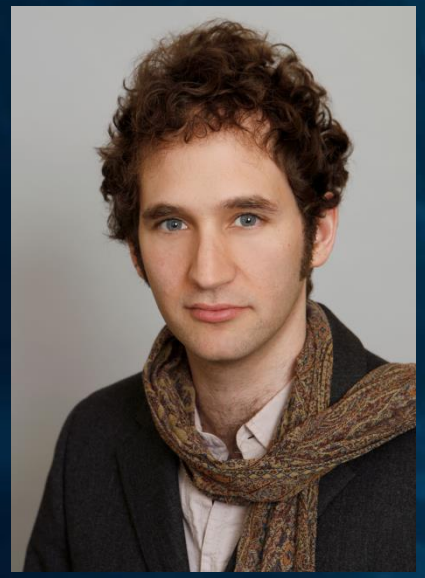

Rafael Pass
Cornell University
Cryptography

Svetlana Lazebnik
University of North Carolina, Chapel Hill
Computer Vision, Graphics, Visualization

Luis Ceze
University of Washington
Systems Architecture

Nicole Immorlica
Northwestern University
Theory, Economics, Social Computing

Gill Bejerano
Stanford University
Bioinformatics, Genomics

Tuesday, July 14
11:45 AM -1:00 PM
Cascade
Five Years of Faculty Fellowships: A Retrospective

"Microsoft Research Faculty Fellowships" 2010

Microsoft Research

- New name: Microsoft Research Faculty Fellowships
  - Broadening the program beyond North America
    - Europe, Middle East, Africa (EMEA)
    - Latin America (LATAM)
- 2010 Fellowship Selection Process
  - Sep–Oct 2009: each institution submits *one nominee*
  - Applications vetted through 3 rounds of reviews
  - Winners announced in April 2010
  - Program information is at: http://research.microsoft.com/en-us/collaboration/awards/nff.aspx

Design Expo - interdisciplinary student teams

Microsoft Research

- Tuesday, July 14
- Kodiak
- 1:00 – 3:45

- Top undergraduate & graduate design institutions showcase their projects on the topic **“New Ways of Working”**

- **Carnegie Mellon, Department of Design**
- **Central Academy of Fine Arts, Media Lab, Beijing, China**
- **Art Center College of Design, Pasadena, California**
- **Universidad Iberoamericana, México City**
- **Dundee University, Scotland, UK**
- **New York University, Interactive Telecommunications Program**
- **University of Washington, Interaction Design Division**

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Example Microsoft Research Projects

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Understanding Change on the Web

demo

Susan Dumais
Principal Researcher
Microsoft Research

Information Dynamics

Microsoft Research

MSR Homepage

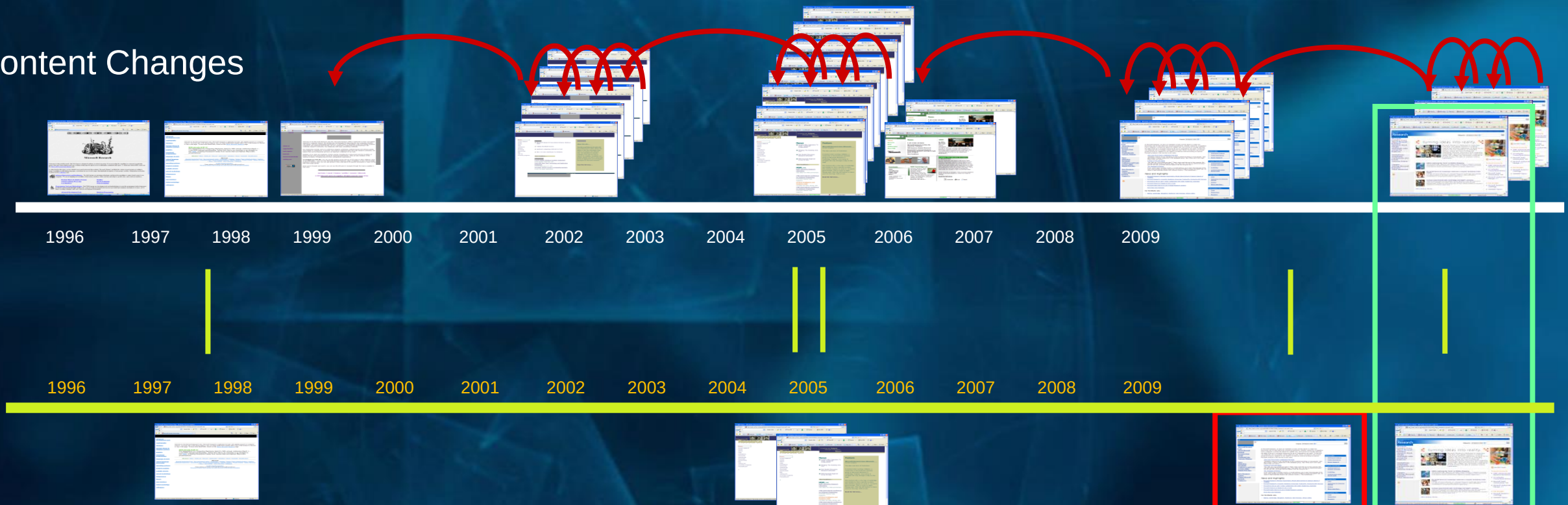
1996

2009

Information Dynamics

Microsoft Research

Content Changes



User Visitation/ReVisitation

Today's Browse and Search Experiences

But, ignores …

What We Are Doing

Microsoft Research

- Analyzing:
  - Content change patterns
  - User re-visitation patterns
  - Relations between change and re-visitation
- Developing:
  - Retrieval models that incorporate time
  - Diff-IE browser plug-in
    - Highlights what's new since you last visited
    - Changes how people view change

Microsoft Research

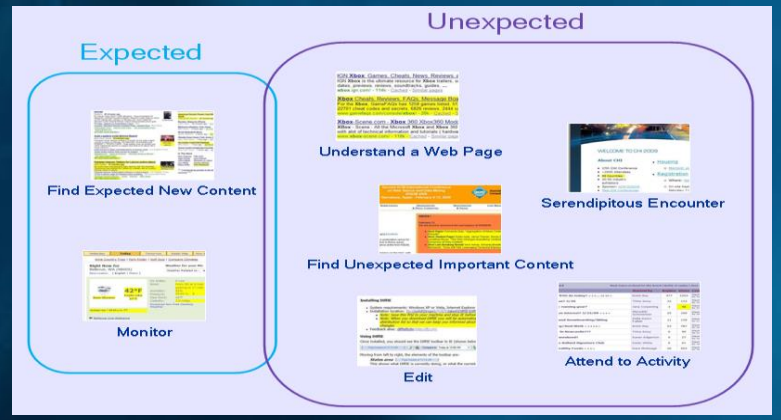
demo

Recap

Microsoft Research

- Web information is highly dynamic
  - Yet, most tools work with a single snapshot of the information
- Understand content change, user re-visitation patterns, and their relationship

- Develop support in
  - Browsers (e.g., DiffIE viewing change, notification, presentation)
  - Search engines (e.g., crawl policy, indexing and ranking algorithms)
- More information
  - Demo #24
  - http://research.microsoft.com/~sdumais



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Social Desktop

demo

Lili Cheng
Director
Microsoft Research

Ease of Sharing & Socializing on the web…

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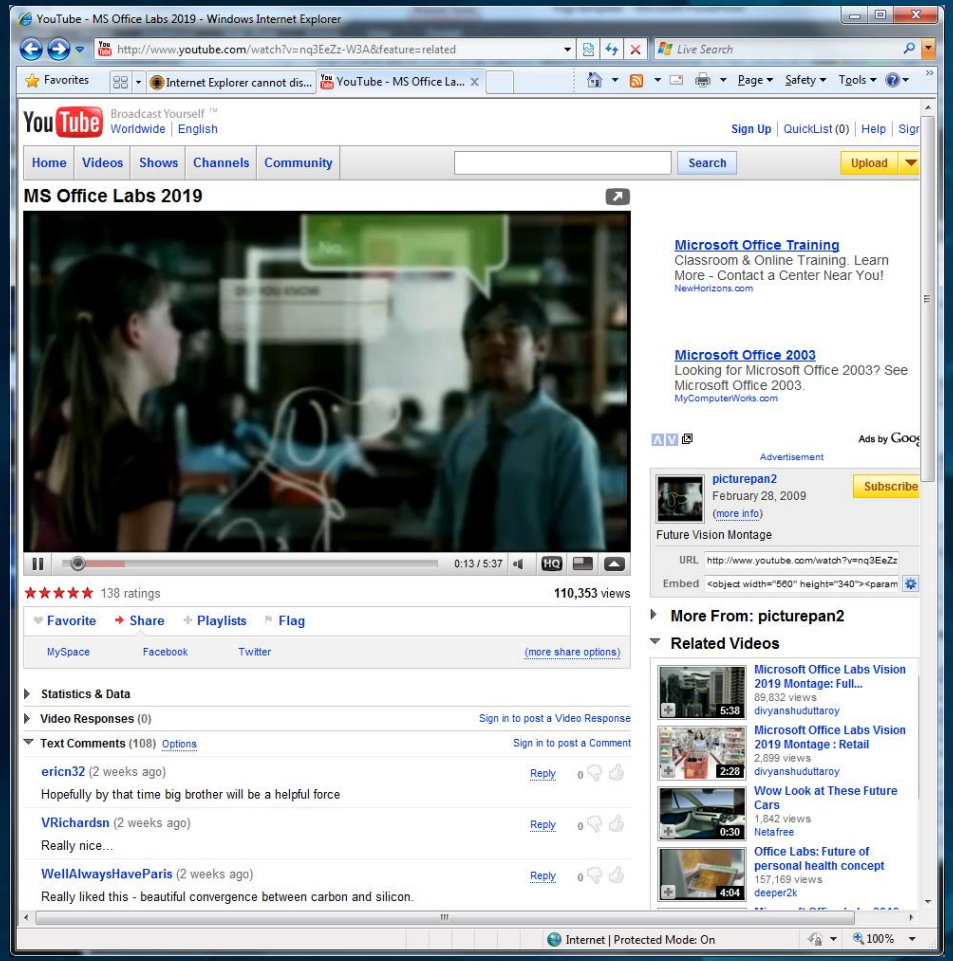
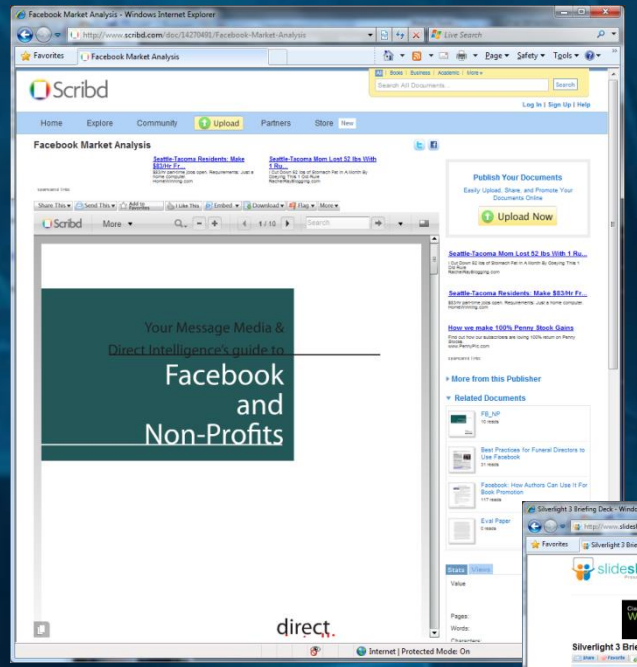
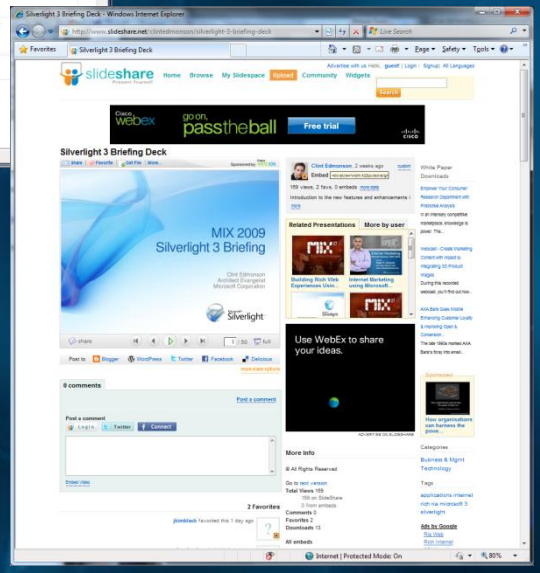


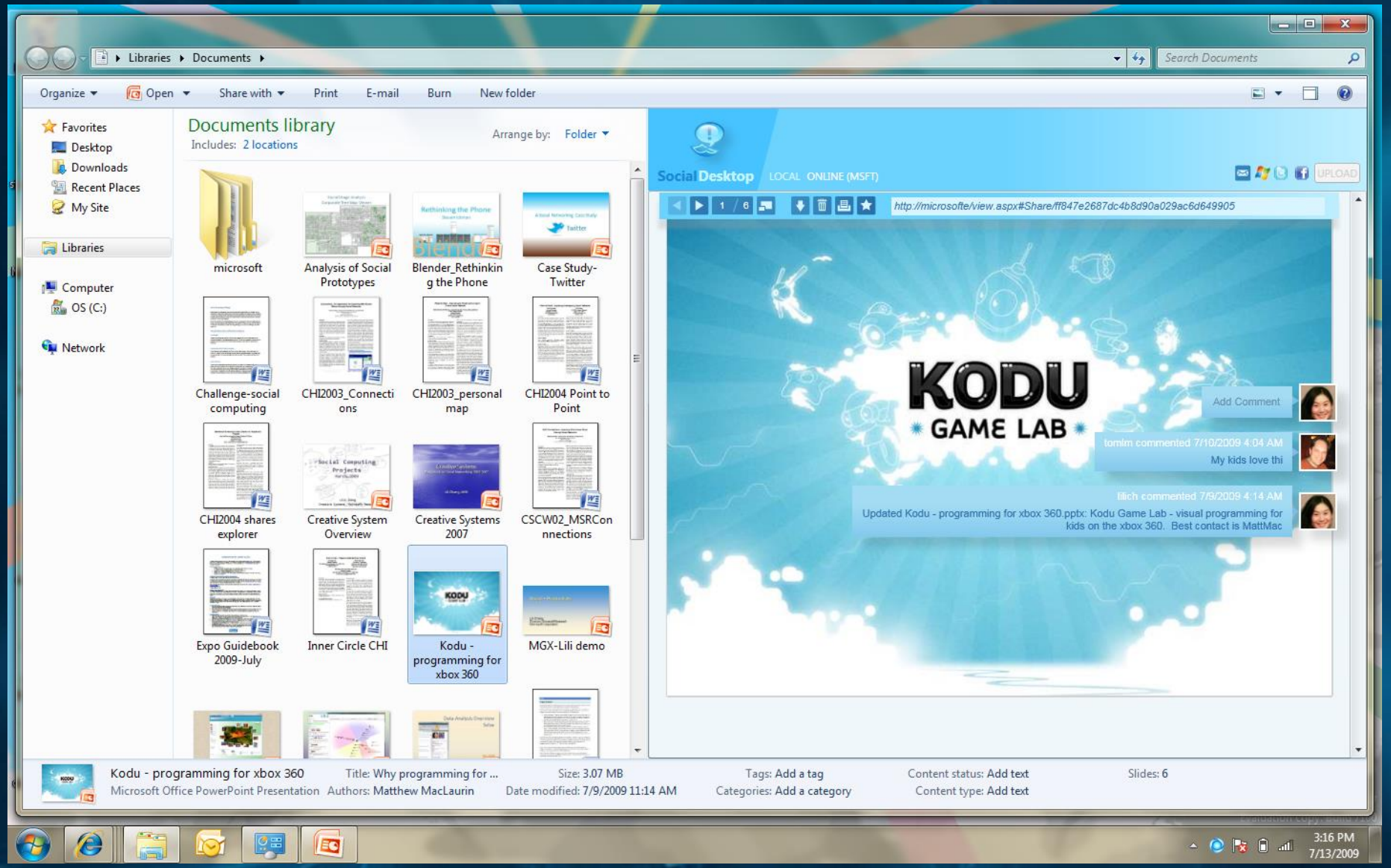




- URLs
- Rich previews
- Social context (comments, ratings, etc.)
- Public sharing

Social Desktop

Microsoft Research



Microsoft Research

demo

Summary

Microsoft Research

- Make sharing easy
- Unify the desktop & web
- Apply the ideas to work as well as home

- Next steps
  - Deploy to see how it's used in different settings
  - More on http://research.microsoft.com/socialdesktop

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Questions and Discussion

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